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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,761	07/14/2003	Edwin M. Stone	21087.0019U5	7382

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NEEDLE & ROSENBERG, P.C.
SUITE 1000
999 PEACHTREE STREET
ATLANTA, GA 30309-3915

EXAMINER	
KAUSHAL, SUMESH	

ART UNIT	PAPER NUMBER
1633	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,761	STONE ET AL.	
	Examiner	Art Unit	
	Sumesh Kaushal Ph.D.	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) *12-52* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response filed on 05/15/06 has been acknowledged.

Election/Restrictions

Applicant's election with traverse of Group I claims 1-11, in the reply filed on 05/15/06 is acknowledged. The traversal is on the ground(s) that there is no serious and additional search burden to examine all the inventions togather. This is not found persuasive these inventions are independent or distinct for the reasons as set forth in the earlier office action and have acquired a separate status in the art in view of their different classification. In addition these inventions are independent or distinct for the reasons of record and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper and there exists a serious and additional search burden to examine all these inventions together.

The requirement is still deemed proper and is therefore made FINAL.

Claims 12-52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/15/06.

Claim Objections

Claims 1-11 are objected to because of the following informalities: Claim 1 recites "EFEMP1". To clearly define for what the instant claim limitation stands for, changing "EFEMP1" to -- EGF-containing fibrillin-like extracellular matrix protein 1 (EFEMP1) -- has been suggested. Appropriate correction is required.

Specification

The disclosure is objected to because of the following informalities: The instant specification recites the text designated as "American Type Culture Collection on _____ and has been assigned ATCC Designation No. _____" in the various pages of instant speciation" (see pages 2, 3, and 17 etc). In addition changing "Figure 2" to Figures 2A and 2B" has also been suggested. Appropriate correction is required to address the missing information.

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01 (see page 59).

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The scope of invention as claimed encompasses EFEMP1 gene, which is of any non-natural (genetically modified) and natural (derived from any organism) origin wherein the gene in this context is capable of eliciting any EFEMP1 biological activity.

Furthermore the scope of invention as claimed encompasses use of genetically modified host cells that express EFEMP1 gene. At best the specification defines i) "An "EFEMP1" gene or protein refers to an "EGF-containing fibrillin-like extracellular matrix protein 1 gene or protein. cDNA encoding a portion of the protein is posted in GenBank under accession number UO3877. The acronym "EFEMP1" includes genes, proteins and portions thereof, which are substantially homologous in structure and function, including fibulin (1 and 2), Fibrillin, nidogen, notch, protein S and Factor IX) (see Spec. page 11 lines 18-21). ii) Furthermore the specification defines "Biological activity" or "bioactivity" or "activity" or "biological function", which are used interchangeably for the purposes herein, means an effector or antigenic function that is directly or indirectly performed by an EFEMP1 polypeptide (whether in its native or denatured conformation), or by any subsequence thereof. Biological activities include binding to a target peptide. An EFEMP 1 bioactivity can be modulated by directly affecting the binding between an EFEMP1 and an EFEMP1 binding partner. Alternatively, an EFEMP1 bioactivity can be modulated by modulating the level of an EFEMP1 polypeptide, such as by modulating expression of an EFEMP1 gene" (spec page 9, line 30). Besides human EFEMP1 cDNA encoding sequence designated as SEQ ID NO:1 the specification as filed fails to disclose any EFEMP1 gene explicitly or implicitly as putatively claimed herein. Furthermore, a gene is hereditary unit that occupies a specific location on a chromosome and determines a particular characteristic in an organism. The art does not provide an accepted definition of "gene" and elaboration of its characteristic. The claims under consideration read upon a gene, which lack an adequate written description in the absence of a specific and particular disclosure of the "gene" characteristics.

Applicant is referred to the guidelines for ***Written Description Requirement*** published January 5, 2001 in the Federal Register, Vol.66, No.4, pp.1099-1110 (see http://www.uspto.gov). The disclosure of a single species is rarely, if ever, sufficient to describe a broad genus, particularly when the specification fails to describe the features of that genus, even in passing. (see In re Shokal 113USPQ283(CCPA1957); Purdue Pharma L. P. vs Faulding Inc. 56 USPQ2nd 1481 (CAFC 2000). In analyzing whether

the written description requirement is met for the genus claim, it is first determined whether a representative number of species have been described by their complete structure. Next, it is determined whether a representative number of species have been sufficiently described by other relevant identifying characteristics (i.e conserve motifs, domains, transcriptional regulatory regions etc). The specification fails to disclose representative number of species by structure and function encompassed by genus as claimed. Furthermore the genus as claimed encompasses structurally and functionally distinct members. Claiming all divergent species that achieve a result as contemplated by the application without defining the representative number of species by structure and function is not in compliance with the written description requirement. Rather, it is an attempt to preempt the future before it has arrived. "The written description requirement has several policy objectives. The essential goal' of the description of the invention requirement is to clearly convey the information that an applicant has invented the subject matter which is claimed." In re Barker, 559 F.2d 588, 592 n.4, 194 USPQ 470, 473 n.4 (CCPA 1977). Another objective is to put the public in possession of what the applicant claims as the invention. See Regents of the University of California v. Eli Lilly, 119 F.3d 1559, 1566, 43USPQ2d 1398, 1404 (Fed. Cir. 1997), cert. denied, 523 U.S. 1089 (1998)." To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail such that the Artisan can reasonably conclude that the inventor(s) had possession of the claimed invention. Such possession may be demonstrated by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and/or formulae that fully set forth the claimed invention. Possession may be shown by an actual reduction to practice, showing that the invention as claimed is "ready for patenting", or by describing distinguishing identifying characteristics sufficient to show that applicant was in possession of the claimed invention (January 5, 2001 Fed.Reg., Vo.66, No. 4, pp. 1099-11).

Since the specification fails to disclose a representative number of species defined by structure and function, it is not possible to envision the claimed composition. One cannot describe what one has not conceived. (See Fiddes v. Baird, 30 USP2d

1481 at 1483). Therefore, the lack of disclosure in the specification is not deemed sufficient to reasonably convey to one skilled in the art that the applicants were in possessions of the huge genera recited in the claims at the time the application was filed. Furthermore the possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with *sufficient relevant identifying characteristics* (as it relates to the claimed invention as a whole) such that a person skilled in the art would recognize that the inventor had possession of the claimed invention. *See, e.g., Pfaff v. WellsElectronics, Inc., 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998); Eli Lilly, 119 F.3d at 1568, 43 USPQ2d at 1406; Amgen, Inc. v. Chugai Pharmaceutical, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991).* In claims to genetic material, generic statement such as "vertebrate insulin cDNA" or mammalian insulin cDNA," without more, is not adequate written description of claimed genus, since it does not distinguish genus from others except by function, and does not specifically define any of genes that fall within its definition, or describe structural features commonly possessed by members of genus that distinguish them from others; accordingly, naming type of material generally known to exist, in absence of knowledge as to what that material consists of, is not description of that material (*Eli Lilly, 119 F.3d at 1568, 43 USPQ2d at 1406).* In the instant case the EFEMP1 gene in context has been defined only by a statement of function that broadly encompasses any EFEMP1 biological activity which conveyed no distinguishing information about the identity of the claimed genetic material, such as its relevant structural or physical characteristics.

According to these facts, one skill in the art would conclude that applicant was not in the possession of the claimed genus because a description of even a single member of this genus would not be representative of other nucleic acid constructs genus and is insufficient to support the claim.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Nature Of Invention

The instant invention relates to method of screening compounds that modulates EFEMP1 activity.

Breadth Of Claims And Guidance Provided in the Specification

The scope of invention as claimed encompasses EFEMP1 gene, which is of any non-natural (genetically modified) and natural (derived from any organism) origin and is capable of eliciting any EFEMP1 biological activity. At best the specification defines "An "EFEMP1" gene or protein refers to an "EGF-containing fibrillin-like extracellular matrix protein 1 gene or protein. cDNA encoding a portion of the protein is posted in GenBank under accession number UO3877. The acronym "EFEMP1" includes genes, proteins and portions thereof, which are substantially homologous in structure and function, including fibulin (1 and 2), Fibrillin, nidogen, notch, protein S and Factor IX) (spec page 11 lines 18-21). Furthermore the scope of invention as claimed encompasses evaluation of any biological activity associated with EFEMP1. At very best the specification teaches "Biological activity" or "bioactivity" or "activity" or "biological function", which are used interchangeably for the purposes herein, means an effector or antigenic function that is directly or indirectly performed by an EFEMP1 polypeptide (whether in its native or denatured conformation), or by any subsequence thereof. Biological activities include binding to a target peptide. An EFEMP 1 bioactivity can be modulated by directly affecting the binding between an EFEMP1 and an EFEMP1 binding partner. Alternatively, an EFEMP1 bioactivity can be modulated by modulating the level of an EFEMP1 polypeptide, such as by modulating expression of an EFEMP1 gene" (spec page 9, line 30). Besides human EFEMP1 coding sequence designated as SEQ ID NO:1 the specification as filed fails to disclose any EFEMP1 gene. The specification as fails to disclose any biological assay that one skill in the art would use to identify the compounds that modulates any EFMP1 bioactivity without further undue amount of experimentation, the would requires the development of an assay to evaluate any biological activity elicited by EFMP1 in any cellular or cell extract environment.

State Of Art And Predictability

The state of the art at the time of filing was such that a single EFEMP1 (*EGF-containing fibrillin-like extracellular matrix protein 1*) mutation associated with both Malattia Leventinese and Doyne honeycomb retinal dystrophy (Stone et al, Nat Genet. 22(2):199-202, 1999). EFEMP1 belongs to the fibulin family, which is a newly emerging family of six secreted glycoproteins, the exact functions of which have not yet been determined. Fibulins 1 and 2 have been found to be associated with other ECM proteins such as fibronectin, laminin, nidogen, perlecan, aggrecan, versican, elastin, endostatin, fibrillin, and fibrinogen in connective tissue fibers, basement membranes, and blood clots. It has been hypothesized that the fibulins may participate in the assembly and stabilization of ECM structures and may regulate organogenesis, vasculogenesis, fibrogenesis, and tumorigenesis. EFEMP1 is widely expressed in human tissues. However, no interactions for this protein have been identified as yet. Klenotic et al, J. Biol. Chem., 279(29):30469-30473, 2004. The disclosure "shall inform how to use, not how to find out how to use for themselves." See In re Gardner 475 F.2d 1389, 177 USPQ 396 (CCPA 1973). The specification as fails to disclose any biological assay that one skill in the art would use to identify the compounds that modulates any EFMP1 bioactivity without an undue experimentation that would require the development of an assay for specific EFEMP1 activity. Furthermore, USPTO does not have laboratory facilities to test if an invention will function as claimed when working examples are not disclosed in the specification, therefore, enablement issues are raised and discussed based on the state of knowledge pertinent to an art at the time of the invention, therefore skepticism raised in the enablement rejections are those raised in the art by artisans of skill. At issue, under the enablement requirement of 35 U.S.C. 1 12, first paragraph is whether, given the Wands-factors, the experimentation was undue or unreasonable under the circumstances. "Experimentation must not require ingenuity beyond that to be expected of one of ordinary skill in the art." See Fields v. Conover, 443 F.2d 1386, 170 USPQ 276 (CCPA 1970).

In instant case screening compounds without having a specific biological assay developed that is designed to detect a specific activity of the bio molecule in context (i.e.

EFEMP1) is not considered routine in the art and without sufficient guidance to the specific bioassay the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). It is noted that the unpredictability of a particular area may alone provide reasonable doubt as to the accuracy of the broad statement made in support of enablement of claims. See Ex parte Singh, 17 USPQ2d 1714 (BPAI 1991). Therefore considering the state of the art and limited amount of guidance provided in the instant specification, one skill in the art would have to engage in excessive and undue amount of experimentation to exercise the invention as claimed.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumesh Kaushal Ph.D. whose telephone number is 571-272-0769. The examiner can normally be reached on Mon-Fri. from 9AM-5PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on 571-272-0731. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to **571-272-0547.** For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**

SUMESH KAUSHAL
PRIMARY EXAMINER
ART UNIT 1633